



LISTING US APPL NO. 10620099 09.06.2007.txt

<110> WACHTER, Rebekka M.

REMINGTON, S. James

<120> LONG WAVELENGTH ENGINEERED FLUORESCENT PROTEINS

<130> 026069-151480

<140> US 10/620,099

<141> 2003-07-14

<150> US 09/575,847

<151> 2000-05-19

<150> US 08/974,737

<151> 1997-11-19

<150> US 08/911,825

<151> 1997-08-15

<150> US 08/706,408

<151> 1996-08-30

<150> US 60/024,050

<151> 1996-08-16

<160> 23

<170> PatentIn version 3.0

<210> 1

<211> 716

<212> DNA

<213> Aequorea victoria

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gtcactactt	tctcttatgg	tgttcaatgc	tttcaagat	acccagatca	tatgaaacgg	240
catgactttt	tcaagagtgc	catgcccga	ggttatgtac	agcaaagaac	tatattttc	300
aaagatgacg	ggaactacaa	gacacgtgct	gaagtcaagt	ttgaaggtga	tacccttg	360
aatagaatcg	agtaaaagg	tattgat	aaagaagatg	gaaacattct	tggacataaa	420
ttggaataca	actataactc	acacaatgt	tacatcatgg	cagacaaaca	aaagaatg	480
atcaaaggta	acttcaaaat	tagacacaac	attgaagatg	gaagcgttca	actagcagac	540
tattatcaac	aaaatactcc	aattctcgat	ggccctgtcc	tttaccaga	caaccattac	600
ctgtccacac	aatctgcct	ttcgaagat	cccaacgaaa	agagagacca	catggcctt	660
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<210> 2

<211> 238

<212> PRT

<213> Aequorea victoria

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Glu	Leu	Asp	Gly	Asp	Val	Asn	Gly	His	Lys	Phe	Ser	Val	Ser	Gly	Glu
				20				25				30			

Gly	Glu	Gly	Asp	Val	Thr	Tyr	Gly	Lys	Leu	Thr	Leu	Lys	Phe	Ile	Cys
				35			40				45				

Thr	Thr	Gly	Lys	Leu	Pro	Val	Pro	Trp	Pro	Thr	Leu	Val	Thr	Thr	Phe
				50			55			60					

Ser	Tyr	Gly	Val	Gln	Cys	Phe	Ser	Arg	Tyr	Pro	Asp	His	Met	Lys	Arg
				65			70			75			80		

His	Asp	Phe	Phe	Lys	Ser	Ala	Met	Pro	Glu	Gly	Tyr	Val	Gln	Gln	Arg
				85			90			95					

Thr	Ile	Phe	Phe	Lys	Asp	Asp	Gly	Asn	Tyr	Lys	Thr	Arg	Ala	Glu	Val
				100			105			110					

Lys	Phe	Glu	Gly	Asp	Thr	Leu	Val	Asn	Arg	Ile	Glu	Leu	Lys	Gly	Ile
				115			120			125					

Asp	Phe	Lys	Glu	Asp	Gly	Asn	Ile	Leu	Gly	His	Lys	Leu	Glu	Tyr	Asn
				130			135			140					

Tyr	Asn	Ser	His	Asn	Val	Tyr	Ile	Met	Ala	Asp	Lys	Gln	Lys	Asn	Gly
				145			150			155			160		

Ile	Lys	Val	Asn	Phe	Lys	Ile	Arg	His	Asn	Ile	Glu	Asp	Gly	Ser	Val
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## SEQ LISTING US APPL NO. 10620099 09.06.2007.txt

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Val	Leu	Leu	Pro	Asp	Asn	His	Tyr	Leu	Ser	Thr	Gln	Ser	Ala	Leu	Ser
195						200					205				
Lys	Asp	Pro	Asn	Glu	Lys	Arg	Asp	His	Met	Val	Leu	Leu	Glu	Phe	Val
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<223> Engineered Aequorea-related fluorescent protein

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ggcaagctga	ccctgaagtt	catctgcacc	accggcaagg	tgccctgtgcc	ctggcccccacc	180
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ggcatcaagg	tgaacttcaa	gatccggcac	aacatcgagg	acggcagcgt	gcagcccggc	540
gaccactacc	agcagaacac	ccccatcggc	gacggccccc	tgctgtgcc	cgacaaccac	600
tacctgagct	accagtccgc	cctgagacaa	gaccccaacg	agaagcgcga	tcacatggtc	660
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<212> PRT

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<223> Engineered Aequorea-related fluorescent protein

<400> 4

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Val	Glu	Leu	Asp	Gly	Asp	Val	Asn	Gly	His	Lys	Phe	Ser	Val	Ser	Gly
							20		25			30			
Glu	Gly	Glu	Gly	Asp	Ala	Thr	Tyr	Gly	Lys	Leu	Thr	Leu	Lys	Phe	Ile
						35		40			45				
Cys	Thr	Thr	Gly	Lys	Leu	Pro	Val	Pro	Trp	Pro	Thr	Leu	Val	Thr	Thr
					50		55		60						
Phe	Gly	Tyr	Gly	Val	Gln	Cys	Phe	Ala	Arg	Tyr	Pro	Asp	His	Met	Lys
					65		70		75			80			
Gln	Gln	Asp	Phe	Phe	Lys	Ser	Ala	Met	Pro	Glu	Gly	Tyr	Val	Gln	Glu
					85		90		95						
Arg	Thr	Ile	Phe	Phe	Lys	Asp	Asp	Gly	Asn	Tyr	Lys	Thr	Arg	Ala	Glu
					100		105		110						
Val	Lys	Phe	Glu	Gly	Asp	Thr	Leu	Val	Asn	Arg	Ile	Glu	Leu	Lys	Gly
					115		120		125						
Ile	Asp	Phe	Lys	Asp	Asp	Gly	Asn	Ile	Leu	Gly	His	Lys	Leu	Glu	Tyr
					130		135		140						
Asn	Tyr	Asn	Ser	His	Asn	Val	Tyr	Ile	Met	Ala	Asp	Lys	Gln	Lys	Asn
					145		150		155			160			
Gly	Ile	Lys	Val	Asn	Phe	Lys	Ile	Arg	His	Asn	Ile	Glu	Asp	Gly	Ser
					165		170		175						
Val	Gln	Pro	Ala	Asp	Hi\$	Tyr	Gln	Gln	Asn	Thr	Pro	Ile	Gly	Asp	Gly
					180		185		190						
Pro	Val	Leu	Leu	Pro	Asp	Asn	His	Tyr	Leu	Ser	Tyr	Gln	Ser	Ala	Leu
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SEQ LISTING US APPL NO. 10620099 09.06.2007.txt

Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe  
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Val Thr Ala Ala Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys  
225 230 235

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<223> Fragment of engineered Aequorea-related fluorescent protein  
S65T, positions 2 to 64

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35 40 45  
Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys  
50 55 60  
Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser  
65 70 75 80  
His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Val  
85 90 95  
Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala  
100 105 110  
Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu  
115 120 125  
Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser Lys Asp Pro  
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Cys Phe His Leu Gln Arg Trp Tyr Glx  
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SEQ LISTING US APPL NO. 10620099 09.06.2007.txt

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<223> Localization sequence targeting the nucleus

SEQ LISTING US APPL NO. 10620099 09.06.2007.txt

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<223> Localization sequence targeting mitochondrion  
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<223> His-tag amino acid sequence  
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20 25 30  
Pro Pro Ala Glu Phe  
35